

# Computer Science - AST



**2023-24**

## Program map for Computer Science Associate in Science-Transfer (AS-T)

Begin studies toward a Bachelor of Science degree in Computer Science. For the AS-T degree in Computer Science, various courses are offered such as calculus, physics, and computer science. A student can also take individual courses in areas of interest to deepen knowledge and understanding.

See also: ( [lowercolumbia.edu/programs/stem](https://lowercolumbia.edu/programs/stem) )

- Degree Requirements for Science, Technology, Engineering and Math programs ( [lowercolumbia.edu/programs/stem](https://lowercolumbia.edu/programs/stem) )
- Course descriptions in LCC Catalog ( [lowercolumbia.edu/publications/catalog/courses](https://lowercolumbia.edu/publications/catalog/courses) )
- Distribution lists in LCC Catalog ( [lowercolumbia.edu/publications/catalog/distribution-lists](https://lowercolumbia.edu/publications/catalog/distribution-lists) )

*Please note that many course sequences only begin in fall quarter. Please check with your program advisor for more information.*

*Please review both the "By Quarter Overview" and "Detailed Class Sequence" tabs below.*

## By Quarter Overview

### First Quarter

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- COLL 101: College Success 101 (2 credits)
- CS 170: Computer Programming (5 credits)
- ENGL& 101: English Composition I (5 credits)
- MATH& 151: Calculus I (5 credits)

### Second Quarter

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- CS 275: Object-Orientated Programming (5 credits)
- MATH& 152: Calculus II (5 credits)
- MATH 215: Discrete Structures (5 credits)

### Third Quarter

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- ECON& 201: Micro Economics (5 credits)
- MATH& 153: Calculus III (5 credits)
- MATH 220: Linear Algebra (5 credits)

### Fourth Quarter

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- CS 270: Data Structures I (5 credits)
- PHYS& 221: Engineering Physics I w/ Lab (5 credits)
- HIST& 128: World Civilizations III (5 credits)

### Fifth Quarter

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- PHYS& 222: Engineering Physics II w/ Lab (5 credits)
- Choose one Humanities course from the distribution list from a discipline other than HIST or ECON (5 credits)
- Elective - subject to CS advisor approval (5 credits)
  - ENGR 205: Design of Logic Circuits (Note: can substitute MATH& 141: Precalculus I or MATH& 142: Precalculus II if already taken)

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### Sixth Quarter

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- Choose one:
  - BIOL& 100: Survey of Biology w/ Lab (5 credits)
  - BIOL& 160: General Biology w/ Lab (5 credits)
  - CHEM& 110: Chemical Concepts w/ Lab (5 credits)
  - CHEM& 121: Intro to Chemistry w/ Lab (5 credits)
  - CHEM& 161: General Chem w/ Lab 1 (5 credits)
  - ENVS 215: Environmental Issues & Applications w/ Lab (5 credits)
  - ERSI 105: Earth Systems w/ Lab (5 credits)
  - Other lab-based science courses may also work. Consult with an LCC advisor and the transfer university.
- CS 280: Advanced Data Structures (5 credits)
- PHYS& 223: Engineering Physics III w/ Lab (5 credits)

## Detailed Class Sequence

### 1. College Success

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COLL 101: College Success 101 (2 credits)

### 2. Pre-Major Requirement

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CS 170: Computer Programming (5 credits)

- *Prerequisite/s: MATH 088 or MATH 097 with grade C or better and knowledge of Windows is required; or instructor permission.*

### **3. Communications Requirement**

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ENGL& 101: English Comp I (5 credits)

- *Prerequisite/s: College level reading and writing skills or completion of ENGL 099 with grade C or better.*

### **4. Math Requirement**

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MATH& 151: Calculus I (5 credits)

- *Prerequisite/s: MATH& 142 with grade C or better*

### **5. Pre-Major Requirement**

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CS 275: Object Oriented Programming (5 credits)

- *Prerequisite/s: CS 170 with grade C or better, or instructor permission*

### **6. Math Requirement**

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MATH& 152: Calculus II (5 credits)

- *Prerequisite/s: MATH& 151 with grade C or better.*

### **7. Pre-Major Requirement**

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MATH 215: Discrete Structures (5 credits)

- *Prerequisite/s: MATH& 142 with grade C or better.*

### **8. Social Sciences Requirement**

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ECON& 201: Micro Economics (5 credits)

- *Prerequisite/s: MATH 088 or BUS 104 and ENGL& 101 or BUS 190*

### **9. Pre-Major Requirement**

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MATH& 153: Calculus III (5 credits)

- *Prerequisite/s: MATH& 152 with grade C or better*

### **10. Pre-Major Requirement**

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MATH 220: Linear Algebra (5 credits)

- *Prerequisite/s: MATH& 152 with grade C or better*

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### 11. Pre-Major Requirement

CS 270: Data Structures I (5 credits)

- *Prerequisite/s: MATH 098 and CS 170, both with grade C or better, or instructor permission*

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### 12. Pre-Major Requirement

PHYS& 221: Engineering Physics I w/ Lab (5 credits)

- *Prerequisite/s: Completion of or concurrent enrollment in MATH& 151 or instructor permission*

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### 13. Humanities / Diversity Requirement

HIST& 128: World Civilizations III (5 credits)

- *Fulfills [ROOT] requirement at WSU*

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### 14. Pre-Major Requirement

PHYS& 222: Engineering Physics II w/ Lab (5 credits)

- *Prerequisite/s: PHYS& 221, MATH& 152 or instructor permission*

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### 15. Humanities Requirement

Choose one Humanities course from the distribution list from a discipline other than HIST or ECON (5 credits)

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### 16. Elective - subject to CS advisor approval

ENGR 205: Design of Logic Circuits (Note: can substitute MATH& 141: Precalculus I or MATH& 142: Precalculus II if already taken) (5 credits)

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### 17. Lab Based Science Course Requirement

Choose one of these recommended courses:

- BIOL& 100: Survey of Biology w/ Lab (5 credits)
- BIOL& 160: General Biology w/ Lab (5 credits)
- CHEM& 110: Chemical Concepts w/ Lab (5 credits)
- CHEM& 121: Intro to Chemistry w/ Lab (5 credits)
  - *Prerequisite/s: CHEM& 100 or CHEM& 110 or one year of high school chemistry, and completion of, or concurrent enrollment in Math 88 or 87 (or higher math)*

- CHEM& 161: General Chem w/ Lab 1 (5 credits)
  - *Prerequisite/s: MATH 098 (or higher) with CHEM& 100, OR MATH 98 (or higher) with high school chemistry; OR MATH& 142*
- ENV5 215: Environmental Issues & Applications w/ Lab (5 credits)
  - *Prerequisite/s: ENGL& 101 or instructor permission*
- ERSI 105: Earth Systems w/ Lab (5 credits)
- Other lab-based science courses may also work. Consult with an LCC advisor and the transfer university.

## 18. Pre-Major Requirement

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CS 280 Advanced Data Structures (5 credits)

- *Prerequisite/s: CS 270 and MATH& 141, both with grade C or better, or instructor permission*

## 19. Pre-Major Requirement

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PHYS& 223: Engineering Physics III w/ Lab (5 credits)

- *Prerequisite/s: PHYS& 222 or instructor permission*



## Program Maps for Science, Technology, Engineering and Math (STEM) ( [lowercolumbia.edu/program-maps/stem](http://lowercolumbia.edu/program-maps/stem) )

- [Bioengineering and Chemical Pre-Engineering AS-T \(Chemical Option\) \( lowercolumbia.edu/program-maps/stem/AST-Bioengineering-and-Chemical-Pre-Engineering-Chemical-Option \)](http://lowercolumbia.edu/program-maps/stem/AST-Bioengineering-and-Chemical-Pre-Engineering-Chemical-Option)
- [Bioengineering and Chemical Pre-Engineering AS-T \(Bioengineering Option\) \( lowercolumbia.edu/program-maps/stem/AST-Bioengineering-and-Chemical-Pre-Engineering-Bioengineering-Option \)](http://lowercolumbia.edu/program-maps/stem/AST-Bioengineering-and-Chemical-Pre-Engineering-Bioengineering-Option)
- [Biological Sciences - AS-T \( lowercolumbia.edu/program-maps/stem/AST-Biological-Sciences \)](http://lowercolumbia.edu/program-maps/stem/AST-Biological-Sciences)
- [Biology - DTA/MRP \( lowercolumbia.edu/program-maps/stem/DTA-MRP-Biology \)](http://lowercolumbia.edu/program-maps/stem/DTA-MRP-Biology)
- [Chemistry - AS-T \( lowercolumbia.edu/program-maps/stem/AST-Chemistry \)](http://lowercolumbia.edu/program-maps/stem/AST-Chemistry)
- [Computer Science - AST \( lowercolumbia.edu/program-maps/stem/AST-Computer-Science \)](http://lowercolumbia.edu/program-maps/stem/AST-Computer-Science)
- [Computer Science AS-T \(WSU-V\) \( lowercolumbia.edu/program-maps/stem/AST-Computer-Science-WSU-V \)](http://lowercolumbia.edu/program-maps/stem/AST-Computer-Science-WSU-V)
- [Computer and Electrical Pre-Engineering - AS-T COMP E EE/MRP \(2 year\) \( lowercolumbia.edu/program-maps/stem/AST-Computer-and-Electrical-Pre-Engineering-2-year \)](http://lowercolumbia.edu/program-maps/stem/AST-Computer-and-Electrical-Pre-Engineering-2-year)
- [Computer and Electrical Pre-Engineering - AS-T COMP E EE/MRP \(3 year\) \( lowercolumbia.edu/program-maps/stem/AST-Computer-and-Electrical-Pre-Engineering-3-year \)](http://lowercolumbia.edu/program-maps/stem/AST-Computer-and-Electrical-Pre-Engineering-3-year)
- [Earth Sciences - AA-DTA \( lowercolumbia.edu/program-maps/stem/AADTA-Earth-Sciences \)](http://lowercolumbia.edu/program-maps/stem/AADTA-Earth-Sciences)
- [Earth Sciences - AS-T \( lowercolumbia.edu/program-maps/stem/AST-Earth-Sciences \)](http://lowercolumbia.edu/program-maps/stem/AST-Earth-Sciences)
- [Environmental Science - AS-T \( lowercolumbia.edu/program-maps/stem/AST-Environmental-Science \)](http://lowercolumbia.edu/program-maps/stem/AST-Environmental-Science)
- [Mechanical, Civil, Aeronautical, Industrial, Materials Science Engineering - AS-T \(2 year\) \( lowercolumbia.edu/program-maps/stem/AST-Mechanical-Civil-Aeronautical-Industrial-Materials-Science-Engineering-2-year \)](http://lowercolumbia.edu/program-maps/stem/AST-Mechanical-Civil-Aeronautical-Industrial-Materials-Science-Engineering-2-year)

- **Mechanical, Civil, Aeronautical, Industrial, and Materials Science Engineering AS-T (3 year) ( [lowercolumbia.edu/program-maps/stem/AST-Mechanical-Civil-Aeronautical-Industrial-Materials-Science-Engineering-3-year](http://lowercolumbia.edu/program-maps/stem/AST-Mechanical-Civil-Aeronautical-Industrial-Materials-Science-Engineering-3-year) )**
- **Physics - AS-T ( [lowercolumbia.edu/program-maps/stem/AST-Physics](http://lowercolumbia.edu/program-maps/stem/AST-Physics) )**
- **Physics - AS-T (Math Transfer Option) ( [lowercolumbia.edu/program-maps/stem/AST-Physics-Math-Transfer-Option](http://lowercolumbia.edu/program-maps/stem/AST-Physics-Math-Transfer-Option) )**